Investigation of the Genetic Transmission of the Atgle1 Mutation and Its Effect on Embryogenesis in Arabidopsis thaliana

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In eukaryotes, the export of mRNA from the nucleus to the cytoplasm via the nuclear pore complex is an essential step in the gene expression pathway. Although the role of nucleoporins in nuclear trafficking is largely conserved in yeast and vertebrates, the effects of individual nucleoporins on seed viability and their biological functions in plants are still elusive. I investigated the AtGLE1 gene in Arabidopsis thaliana and took a genetic approach to identify the homozygous Atgle1/Atgle1 mutant. AtGLE1, a homolog of Gle1 in yeast, is thought to facilitate mRNP remodeling by interacting with Nup159p/LNO1 and DEAD-box helicase/LOS4 at the NPC. I did not obtain any viable homozygous plants, but did observe irregular seed abortion patterns that deviated significantly from the expected ratio. My results indicate that AtGLE1 is required for embryogenesis and seed viability in Arabidopsis plants.

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